AMENDMENTS TO THE CLAIMS

1. (Currently amended) Method for the dynamic allocation of radio channels (Ci) in digital telecommunication networks with time division duplex access, the radio channels (Ci) being associated to radio signals divided into frames having a pre-determined duration and each frame is divided into a pre-determined number of timeslots (Ti) which are assigned priority values (Pi) based on interference and/or quality measures of channels (Ci), each communication service (Sx) employing a particular number (Rx) of said channels (Ci) at a time, characterized in that includes the following operational steps:

a) measuring the path loss (PLx) of the signal with which said communication service (Sx) has been requested;

b) allocating said number (Rx) of channels (Ci) of the communication service (Sx) in a timeslot (Tx) having a priority value (Pi) increasing with the path loss (PLx) of the signal, in such a way that the services employing said number (Rx) of channels (Ci) are allocated in timeslots (Ti) having priority values (Pi) increasing with the path loss (PLx) of the signal.

2. (Currently amended) Method according to claim 1, characterized in that at each request for a communication service (Sx) the services employing the same number (Rx) of channels (Ci) of the requested service (Sx) are reordered in such a way that the

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attenuation ~~(PLx)~~ increases with priority values ~~(Pi)~~.

3. (Currently amended) Method according to claim 1 or 2, characterized in that it includes an allocation algorithm including the following operational steps:

- first searching, starting from timeslots ~~(Ti)~~ with highest priority values ~~(Pi)~~, a timeslot ~~(Tx)~~ having a number of free channels ~~(Ci)~~ equal to the number ~~(Rx)~~ of channels ~~(Ci)~~ of the requested service ~~(Sx)~~;

- second searching, starting from timeslots with priority values ~~(Pi)~~ higher than that of the timeslot ~~(Tx)~~ found with the first search, a communication service ~~(Sy)~~ having the same number ~~(Rx)~~ of allocated channels ~~(Ci)~~;

- comparing the path loss values of the signals of the requested communication service ~~(Sx)~~ and of communication service ~~(Sy)~~ found with the second search;

- allocating, according to the result of this comparison, one of these communication services ~~(Sx, Sy)~~ in the timeslot ~~(Tx)~~ having said number ~~(Rx)~~ of free channels ~~(Ci)~~.

4. (Currently amended) Method according to claim 3, characterized in that said algorithm is reiterated according to the result of said comparison between the attenuation values of the signals of the requested communication service ~~(Sx)~~ and of the

communication service (Sy) found with the second search.

5. (Currently amended) Method according to claim 3, characterized in that it is searched, starting from timeslots with priority values (Pi) higher than that of the timeslot (Tx) found with this first search, the communication service (Sy) whose signals show the lower attenuation (PLm) among the communication services having the same number (Rx) of channels (Ci) allocated in the same timeslot (Tx).

6. (Currently amended) Method according to claim 1, characterized in that at each release of a communication service (Sx) are reordered according to increasing priority values (Pi) the services employing the same number (Rx) of channels (Ci) of the service released (Sx).

7. (Currently amended) Method according to claim 6, characterized in that it includes a release algorithm including the following operational steps:

- third searching, among the timeslots with priority values (Pi) lower than that of the timeslot (Tx) of the released communication service (Sx), a timeslot (T) in which at least a communication service having the same number (Rx) of channels (Ci) of the communication service released (Sx) is allocated;

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– allocating in the timeslot (Tx) of the released communication service (Sx) the communication service (Sy) characterised by the highest attenuation among all the services employing Rx channels (Ci) in the timeslot (T) found with the third search.

8. (Currently amended) Method according to claim 7, characterized in that said third searching and allocating steps of the release algorithm are performed as in the following:

– third searching, among the timeslots with priority values (Pi) lower than that of the timeslot (Tx) of the released communication service (Sx), a timeslot (T) in which at least a communication service employing a number of channels (Ci) lower than that of the communication service released (Sx) is allocated;

– allocating in the timeslot (Tx) of the released communication service (Sx) the communication service (Sy) characterised by a higher attenuation amongst all the services employing a number of channels (Ci) lower than that of the communication service released (Sx) and which are allocated in the timeslot (T) found with the third search.

9. (Currently amended) Method according to claim 7 or 8, characterised in that said algorithm is reiterated starting from the timeslot of the last communication service released (Sy).

10. (Currently amended) Method according to claim 1, characterized in that at each allocation and/or release of a service, the priority values (Pi) assigned to the timeslots ~~(Ti)~~ are re-calculated on the basis of the following formula:

$$Pi(k) = \lambda Pi(k-1) + (1-\lambda)s_i(k),$$

where k is the instant at which the service is allocated or released, $s_i(k)$ is a logic function returning a number between 0 and 1 on the basis of the negative or positive result, respectively, of these requests for connection services and λ is a memory factor included between 0 and 1.

11. (Currently amended) Method according to claim 10, characterized in that $s_i(k)$ is defined by the following formula:

$$s_i(k) = \frac{N_{free_i}(k)}{N_{max} - N_{used_i}(k)};$$

in which $N_{free\ i}(k)$ is the number of channels ~~Ci~~ that can be allocated with a good quality in the timeslot i, N_{max} is the maximum number of channels available for each timeslot and $N_{used\ i}(k)$ is the number of channels presently already allocated in timeslot i.

12. (Currently amended) System for the dynamic allocation of radio channels ~~(Ci)~~ in digital telecommunication networks with time

division duplex access, the system including at least one base station (1) for the reception and transmission of radio signals associated to the radio channels (Ci) from/to a plurality of user equipment (2), the radio signals being divided in frames having pre-determined duration and each frame being divided into a pre-determined number of timeslots (Ti) which are assigned priority values (Pi) based on interference and/or quality measures of channels (Ci), each communication service (Sx) employing a particular number (Rx) of said channels (Ci) at a time, characterized in that said base station (1) includes means for the measurement of the path loss (PLx) of the signal with which said communication service (Sx) has been requested, as well as a control processor suitable to implement all the steps of the method according to claim 1.

13. (New) In a digital telecommunication network using time division duplex access for processing radio signals comprising a plurality of frames, wherein each of the plurality of frames comprises a plurality of timeslots and each of the timeslots comprises a plurality of channels, a method for the dynamic allocation of a set of channels to each of a plurality of communication services in response to a plurality of communication service requests each having a path loss comprising the steps of:

determining priority values for each of the timeslots;

determining a path loss for each of the plurality of communication service requests; and

assigning a communication service associated with the communication request having the highest path loss to the timeslot having the highest priority.

14. (New) The method of claim 13 including the additional step of assigning a communication service associated with the communication request having the second highest path loss to the timeslot having the second highest priority.

15. (New) The method of claim 13 including the additional steps of:

determining a size of the set of channels required by a given communication service;

determining whether a set of channels of the size has previously been allocated to another communication service;

comparing the path loss of the given communication service to the path loss of the another communication service; and

assigning sets of channels to the given communication service and the another communication service such that the one of the given communication service and the another communication service having the higher path loss is assigned to the timeslot having the higher priority.

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16. (New) The method of claim 13 including the additional steps of:

determining a size of the set of channels required by a given communication service;

searching the timeslots in order of decreasing priority value to locate a first timeslot having a free set of channels having the size;

if a first timeslot having a free set of channels having the size is located, searching for at least one second timeslot having priority values higher than the priority value of the first timeslot having a set of allocated channels having the size;

if at least one second timeslot having a priority value higher than the priority value of the first timeslot and a set of allocated channels having the size is located, comparing the path loss of the given communication service with the path loss of a communication service using the at least one second timeslot; and

allocating the first timeslot and the at least one second timeslot based on a result of said comparing the path loss step.

17. (New) The method of claim 16 wherein said step of allocating the first timeslot and the at least one second timeslot based on a result of said comparing the path loss step comprises the steps of:

if the path loss of the given communication service is greater than the path loss of the communication service using the at least one second timeslot, allocating the at least one second timeslot to the given communication service.

18. (New) The method of claim 16 including the additional step of reallocating timeslots after a release of the given communication service or the another communication service.